

**REMARKS**

The preceding claim amendments and the following remarks are submitted as a full and complete response to the Office Action issued on May 1, 2008. In the Office Action dated May 1, 2008, claims 1, 2 and 11 in the above-identified U.S. patent application were rejected and claim 7 was made subject to a final restriction requirement. Applicants respectfully request reconsideration and withdrawal of the outstanding Office Action rejections based on the above amendments and the following remarks.

**Summary**

Claims 1-4, 7-9 and 11-13 remain in this application, claims 3, 4, 8, 9, 12 and 13 have been withdrawn, claims 5, 6 and 10 have been canceled, and claims 1, 7, 8, 9 and 13 have been amended. Claims 1, 7, 8, 9 and 13 have been amended to delete subject matter directed to dimoxystrobin of the formula V and the strobilurin derivative of the formula VI. Claim 7 has also been amended to clarify the fungicide combinations to which the claim refers.

**Restriction Requirement**

Applicants have amended Claim 7 to bring it within Group I as defined in the restriction requirement dated February 22, 2008. The Examiner explains that "Group I requires prothioconazole and at least one other fungicidal compound whereas Group II requires that

prothioconazole be used in combination with all of the fungicidal compounds listed as 'at least one selected from' compounds of Group I." (Office Action page 2.) Applicants have amended Claim 7 to recite weight ratios of prothioconazole to the further fungicidal compound of a fungicidal mixture as claimed in Claim 1. Applicants have further amended Claim 7 to use the disjunctive, "or," to connect the list of further fungicidal compounds in place of the conjunctive, "and." Applicants respectfully submit that Claim 7 is now clearly within Group I, and request consideration of Claim 7 on the merits.

**Rejection of Claims 1, 2 and 11 as Unpatentable under 35 U.S.C.**

**§ 103(a)**

Claims 1, 2 and 11 were rejected as unpatentable under 35 U.S.C. § 103(a) as unpatentable over Wachendorff-Neumann et al. (US 6787567, "Wachendorff.") Examiner states that Wachendorff discloses that prothioconazole and trifloxystrobin are both useful as fungicides. (Office Action page 3.) Examiner argues that "even though Wachendorff fails to use the two compounds together, the mere fact that both compounds are commonly used as fungicides" would have motivated one of ordinary skill to combine them for use as a fungicide, and such combination is therefore *prima facie* obvious. (Office Action page 4.) Applicants respectfully traverse this rejection.

Wachendorff discloses a combination of methoximinoacetamide derivatives of formula (I) and one active compound of Groups (1) to (58), which include trifloxystrobin (12) and prothioconazole (20). Wachendorff does not teach or suggest using the compounds of Groups (1) to (58) in combination with each other. No specific mixture of prothioconazole and another fungicidal agent other than methoximinoacetamide is in any way suggested in Wachendorff. The prothioconazole or trifloxystrobin disclosed in Wachendorff is always combined with methoximinoacetamide or derivative thereof formula I. Wachendorff therefore would lead one of skill in the art to conclude that methoximinoacetamide is necessary to achieve the "surprising[ ]" and "unforeseeable" synergistic effects observed in the combinations disclosed by Wachendorff. (Wachendorff, col. 16, ln. 33-37.)

Furthermore, Wachendorff does not indicate that either prothioconazole or trifloxystrobin is a particularly effective or desirable fungicide. In fact, Wachendorff teaches that "the activity of [triazole derivatives] is not always satisfactory at low application rates." (Wachendorff, col. 1, ln. 14-20.) Wachendorff thus teaches away from the use of prothioconazole, a triazole derivative, which is required by all pending claims of the present invention.

Even if one were motivated to combine all of the compounds numbered (1) through (58) of Wachendorff, the resulting group of

combinations is too large to render obvious the three combinations claimed in the present application. The list of compounds (1) through (58) of Wachendorff includes several alternative versions such that more than 85 compounds are disclosed, not including isomers. There are therefore more than 3570 combinations that include two of the compounds numbered (1) through (58). Not only does Wachendorff not teach combinations of compounds (1) through (58), the genus described by those combinations is so large that it would not have been obvious to select the combination of prothioconazole and trifloxystrobin.

Finally, even if Wachendorff made out a *prima facie* case of obviousness (which it does not), the selected combinations of the present invention exhibit surprising, unexpectedly improved fungicidal properties. The unexpectedly improved efficacies of the selected combinations are claimed in the present application and supported by the specification. The pending claims of the present application are directed toward "synergistically effective" combinations of fungicidal compounds. (See Claim 1.) Synergistic effects of fungicides are calculated according to Colby's formula, as described in the specification. (Paragraphs [0082] - [0085], [0087].) Wachendorff et al rely on the same accepted method for identifying synergistic effects of fungicides. (Wachendorff, col. 28, ln. 9-33.) The determination of synergy involves comparing the

predicted efficacies for the active compound combinations to efficacies observed experimentally. (Paragraphs [0082]-[0085]; Wachendorff, col 28, ln. 5-8.) Those combinations that exhibit higher-than-predicted efficacies are synergistically effective combinations. *Id.* The very method of determining synergy reveals that it is inherently impossible to predict a synergistic effect of two compounds; the only way to find synergy is through biological experimentation.

Wachendorff et al comment that, in the combinations of their invention, "an *unforeseeable*, true synergistic effect is present, and not just an addition of activities." (Wachendorff et al, col. 16, ln 33-37, emphasis added.) Thus Wachendorff et al itself indicates that true synergistic fungicidal combinations, like those of the present invention, are not predictable.

The data in Tables 1 - 4 of the present specification show that prothioconazole of the formula (I) in combination with each of trifloxystrobin of the formula (II), picoxystrobin of the formula (III) or pyraclostrobin of the formula (IV) has an observed efficacy greater than that predicted from the separate efficacies of the compounds (Paragraphs [0087]-[0094]). Table 2, for example, reports the calculated and observed efficacies of combinations according to the invention against mildew of wheat caused by *Erysiphe graminis* (Paragraph [0088]). Prothioconazole (0.015ppm) and trifloxystrobin

(0.25ppm) have an expected ("calculated") efficacy of 22%. *Id.* The actual ("observed") efficacy, however, is 33%. *Id.* Similarly, Table 4 reports the calculated and observed efficacies of combinations according to the invention against brown rust of wheat caused by *Puccinia recondite* (Paragraphs [0090], [0093]). Prothioconazole (1.0ppm) and trifloxystrobin (0.25ppm) have a calculated efficacy of 0%. (Paragraph [0093].) The observed efficacy of this combination, however, is 67%. *Id.*

Claim 1, as currently amended, is directed specifically to combinations of prothioconazole with each of trifloxystrobin, picoxystrobin and pyraclostrobin. These compositions have been experimentally observed by the present inventors to be synergistically effective, as detailed in Tables 2 and 4. (Paragraphs [0088], [0093].) Applicants submit that it could not have been obvious to conclude from the multitude of fungicides disclosed in Wachendorff et al that the three combinations presently claimed possess synergistic activities.

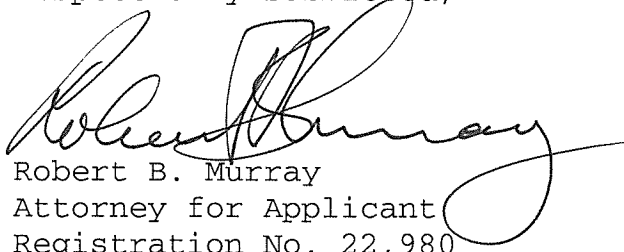
Applicants respectfully submit that all of claims 1, 2, 7 and 11 are in condition for allowance. Applicants respectfully request that claims 3 and 4, directed to non-elected species, also be rejoined in view of the allowability of Claim 1. In view of the foregoing amendments and remarks, Applicants respectfully request withdrawal of

the outstanding Office Action rejections. Early and favorable action on the merits is awaited.

If any additional payment is required, please charge the cost thereof to deposit account no. 02-2135.

Respectfully submitted,

By

A handwritten signature in black ink, appearing to read "Robert B. Murray", is written over the typed name and address.

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